

THE CLAIMS

What is claimed is:

1. Dispensing system for on-demand dispensing at least a single serve portion of a spoonable or drinkable food product in a container comprising:

storage members for separately storing a plurality of food components having different specific characteristics,

pump means for each food component for independently transporting the food components from the storage members to a point of dispensing,

selection means for selecting a food product,

control means adapted to control the actuation of at least two of the pump means as a response to the activation of the selection means during the serving of the portion of the food product to achieve the dispensing of the product with a visual differentiation of the components in the container.

2. Dispensing system according to claim 1, wherein the visual differentiation is obtained by controlling the pump means during dispensing of the products according to at least one variable selected from the group consisting of pump velocity, pumping time, discharge cycling mode and discharge arrangement.

3. Dispensing system according to claim 2, wherein said control means are adapted to selectively actuate said pump means in a sequential discharge cycling mode for the dispensing of the product.

4. Dispensing system according to claim 3, wherein the control means provides a layered visual differentiation in the product.

5. Dispensing system according to claim 2, wherein the control means are adapted to selectively actuate said pump means in a simultaneous discharge cycling mode for the dispensing the product.

6. Dispensing system according to claim 5, wherein the control means provides a swirled visual differentiation in the product.

7. Dispensing system according to claim 1, wherein the pump means transport the food components without directly contacting them.

8. Dispensing system according to claim 7, wherein each pump means transports a food component through a disposable hose attached to said storage member.
9. Dispensing system according to claim 8, wherein each pump means forces the food components to a merging means in which the food components are substantially merged without thorough mixing.
10. Dispensing system according to claim 9, wherein said merging means is a common nozzle member comprising separate inlets to receive the flow of each food component and adjacent outlets in which the flows of food components are substantially merged in the direction of the point of dispensing.
11. Dispensing system according to claim 10, wherein the adjacent outlets comprise a plurality of concentrically arranged dispensing channels for separately dispensing the food components.
12. Dispensing system according to claim 1, wherein the food components have different characteristics of color, flavor, viscosity, taste or a combination of one or more of such characteristics.
13. Dispensing system according to claim 12, wherein the food components are refrigerated.
14. Dispensing system according to claim 13, wherein the food components comprise at least one acidified dairy component.
15. Dispensing system according to claim 13, wherein the food components comprise at least one fruit based or colored component.
16. Dispensing system according to claim 13, wherein one component is an acidified dairy component and another component is a fruit based component.
17. Dispensing system according to claim 13, wherein the food component comprises at least one culinary component.
18. Dispensing system according to claim 1, wherein the storage members comprise flexible bags and hoses connected to said bags by fitments.
19. Dispensing system according to claim 18, wherein the pump means comprises volumetric positive displacement pumps into which are individually engaged with the flexible hoses.
20. Dispensing system according to claim 18, wherein the pump means are peristaltic pumps.

21. Dispensing system according to claim 1, wherein the control means comprises:

- a first motor for actuating a first series of at least two pump means,
- a first selective clutch assembly for engaging selectively said pump means; and
- a control center adapted to the control activation of both said first motor and said first clutch assembly for selectively driving the selected pump means.

22. Dispensing system according to claim 21, wherein said control center is adapted to control the activation of the first clutch assembly in either a sequential or a simultaneous driving mode.

23. Dispensing system according to claim 22, wherein the clutch assembly comprises:

- a pair of magnetically operable clutches; and
- a multi-piece drive shaft assembly comprising an inner shaft portion connected to a first pump and an outer shaft portion connected to a second pump;

wherein each magnetically operable clutch is connected to one of the two portions of the shaft so that said clutch may operate said portion of shaft upon the magnetic engagement of the clutch by an electrical impulse delivered under the control from the control center.

24. Dispensing system according to claim 21, wherein the control means comprises:

- a second motor for actuating a second series of two pumps;
- a second selective clutch assembly for engaging selectively said pump means of said second series; and
- a control center adapted to the control activation of said first and second motors and said first and second clutch assemblies for selectively driving the selected first and second series of pump means.

25. Dispensing system according to claim 1, wherein the selection means are adapted to select one desired visual configuration from a choice of at least two visual configurations.

26. Method for delivering at least a single serve portion of a spoonable or drinkable food product of fresh appearance on demand in a container comprising selectively pumping at least two food components of different specific characteristics from at least two separate

storage sources while effecting a visual differentiation of the two components in the container.

27. Method according to claim 26, wherein the food components are pumped either sequentially or simultaneously.

28. Method according to claim 27, wherein the food product is pumped according to repeated sequential cycles of the at least two components in an alternative manner until a layered visual configuration in the container is obtained.

29. Method according to claim 28, wherein a pause is respected between each dispensing cycles that is sufficient to allow each layer to settle in the container.

30. Method according to claim 26, wherein the food product is pumped according to a simultaneous pumping of the two components while achieving a differential of the pumping rates between the two pumped components that is capable of providing a swirled visual differentiation of the two components in the container.

31. Method according to claim 26, wherein a visual differentiation is obtained by adjusting at least one pumping variable of one component differently from the other component and wherein said variable is selected from the group consisting of: pump rate, pumping time, discharge cycling mode and a combination thereof.

32. Method according to claim 26, wherein the container is transparent or translucent.

33. Method according to claim 26, wherein the components are merged before dispensing without thorough mixing.

34. Method according to claim 33, wherein the components are concentrically dispensed.

35. Method according to claim 34, wherein the innermost component is dispensed at a higher rate than the outermost component.

36. Method according to claim 35, wherein the innermost component is a white acidified dairy component and the outermost component is a fruit sauce.

37. Method according to claim 36, wherein the innermost component is dispensed at a flow rate of from about 10 to 30 grams/second and the outermost component is dispensed at a flow rate of from about 2 to 20 grams/seconds.

38. Method according to claim 26, wherein at least one of the components is a refrigerated component.

39. Method according to claim 38, wherein one of the components is an acidified dairy component.
40. Method according to claim 38, wherein one of the components is a fruit based or colored component.
41. Method according to claim 26, wherein one of the components is a culinary component.
42. A spoonable or drinkable food product comprising a transparent or translucent container that contains on-demand dispensed portions of at least two visually distinct food components which are refrigerated and non-thawed, wherein the components are viewable through the container.
43. Food product according to claim 42, wherein said portions are single serve portions formed of successive layers of the food components without apparent bleeding of the two layers together at least two minutes, preferably at least 5 minutes, after dispensing.
44. Food product according to claim 43, wherein one of the food components is an acidified dairy component.
45. Food product according to claim 43, wherein one of the components is a fruit based component.
46. Food product according to claim 42, wherein said portions are single serve portions formed of a swirled visual effect of the at least two components
47. Food product according to claim 42 wherein the components are arranged concentrically in the container.
48. Food product according to claim 47 wherein an innermost component is a white acidified dairy component and an outermost component is a fruit sauce.
49. Food product according to claim 42, wherein one of the components is a culinary component.
50. Food product according to claim 42, wherein the portion is a portion suitable for serving a group.